

# Population-Based HIV Prevalence and Associated Factors in Male-to-Female Transsexuals from Southern Brazil

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**Abstract** This study assessed HIV prevalence and associated factors in 284 male-to-female transsexuals from southern Brazil. Seroprevalence was 25 %. Seroprevalence was higher and associated with older age, residence in the metropolitan area, history of diagnosis of other STDs, and reported history of sex work. The year of diagnosis showed no significant relationship with the prevalence of HIV nor the fact of being in a stable relationship, a history of drug use, years of education, and race/ethnicity. The odds of HIV infection compared with the general Brazilian population was 55.55 (95 % CI 38.39–80.39). Changes in the views of the vulnerable groups to HIV/AIDS in Brazil and efforts in the construction of strategies of prevention and in the guarantee of human rights are required.

**Keywords** Gender dysphoria · Transsexualism · Gender identity disorder · HIV · Prevalence · Brazil

## Introduction

A recent meta-analytic study showed that the male-to-female transsexual (MtF) population is disproportionately affected by the HIV epidemic. The pooled prevalence in 11,066 transgender

women worldwide was 19.1 % (95 % CI 17.4–20.7) (Baral et al., 2013).

In Brazil, the first study regarding HIV and the transgender population was from the 1990s and was conducted among incarcerated *travestis* (Brazilian transgender identity) from Casa de Detenção, São Paulo (Varella et al., 1996). All *travestis* in the prison were tested and 78 % were positive for HIV infection. Another study, from the 2000s (also in São Paulo), used peer recruitment and a storefront setting in the downtown area. It tested 434 street-based sex worker *travestis* and the rate of HIV infection was 39.9 % (Grandi, Goihman, Ueda, & Rutherford, 2000). The third study used retrospective opportunity sampling and found a 19.6 % HIV prevalence through self-report in 122 MtF transsexuals (Lobato et al., 2007). Finally, the most recent study tested 82 born males identified as women, *travestis*, or transsexual who were recruited using respondent-driven sampling in southeastern Brazil. The prevalence was 14 % (Carballo-Diéguez, Balan, Dolezal, & Mello, 2012).

There are no published data available using population-based measures of HIV prevalence among transsexuals in Brazil. In this study, we report the results of a population based cross-sectional study that assessed HIV seroprevalence and associated factors among MtF transsexuals seeking sex reassignment surgeries (SRS) in southern Brazil.

## Method

### Participants

In this study, 284 MtF transsexuals residents in the state of Rio Grande do Sul, southern Brazil were enrolled. All participants were patients of the Gender Identity Program (PROTIG) at Hospital de Clínicas de Porto Alegre, from its creation in 1998–2014.

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In 1997, the Brazilian Federal Council of Medicine established that SRS should be exclusively provided by university hospitals. The procedures are fully funded by the Brazilian health system. There are currently four centers in Brazil. The oldest and the one that attends southern Brazilian population is PROTIG. Transsexuals seeking SRS who are residents of Rio Grande do Sul must access the surgery by PROTIG, which means that the service's database is composed of the population of southern Brazilian transsexuals. In the present study, all patients that entered this service seeking SRS were assessed through medical records.

Rio Grande do Sul is the fifth most populous state in Brazil with 11,164,050 inhabitants. Porto Alegre, the capital, has a population of 1,467,823 inhabitants. Its metropolitan area comprises 22 municipalities with an estimated population of over 4 million residents (Instituto Brasileiro de Geografia e Estatística, 2013). The rate of human development index (HDI) of the state is considered high, 0.746. However, like the rest of

**Table 2** Logistic regression: Factors associated with HIV infections

Factor	OR	95 % CI	<i>p</i>
Place of residence	2.15	1.03–4.45	.040
Age	1.06	1.02–1.10	.001
History of sex-work	2.74	1.42–5.27	.003
History of STD	6.06	3.25–11.97	<.001

Brazil, it shows great contrasts with cities with low development (0.587) to the city with a very high development (Porto Alegre, 0.805) (Programa das Nações Unidas para o Desenvolvimento, 2013).

### Measures

Medical records were examined for the composition of the biosociodemographic profile of the participants. It included age, years of education, ethnicity, place of residence, history of engagement in sex work, conjugality (being in a stable relationship for at least 1 year), history of diagnosis for sexually transmitted diseases (STD) (e.g., chlamydia, hepatitis B and C, genital warts, gonorrhea, herpes, syphilis, and trichomoniasis), history of illicit drug abuse (e.g., marijuana, cocaine), and the year of diagnosis. Patient's serum was analyzed in the first consultation by the method of chemiluminescence in a Siemens ADVIA Centaur equipment. If the test was positive, a manual immunochromatography test (high specificity) was performed to confirm it. In positive samples, a new collection was made. Positive results in the second collection were considered diagnostic. If the results of the first sample were positive and the second negative, a third collection was seated up. Analyzed variables included: age, years of education, HIV status (negative = 0, positive = 1), STD history (none = 0, any = 1), sex work (never = 0, yes = 1), conjugality (non-single = 0, single = 1), ethnicity (white = 0, non-white = 1), place of residence (country = 0, metropolitan area = 1), drug abuse (no = 0, yes = 1), and year of diagnosis (1998–2007 = 0, 2008 to present = 1).

### Statistical Analysis

A description of the sample was carried out by calculating the prevalence, frequency, range and medians of the different variables. In addition, a bivariate analysis was performed for the associations between the biosociodemographic parameters and the presence or absence of HIV infection. The odd ratio (OR) was calculated and had a 95 % confidence interval (CI) in the outcome. In the multivariate analysis, logistic regression was used. Regression was forward and followed a conditional model. Variables with a *p* value less than or equal to .05 were retained to adjust the variables of the next level.

**Table 1** Prevalence and associated factors of HIV infection

Factor	n	Prevalence (%)	<i>p</i>
History of STD			
Yes	192	51.1	<.001
No	92	12.5	
History of sex-work			
Yes	201	38.6	.001
No	83	19.4	
Age <sup>a</sup>			
15–26	128	14.8	<.001
27–38	112	29.5	
39–58	44	43.2	
Place of residence			
Metropolitan area	192	29.7	.008
Country	92	15.2	
Year of diagnosis			
1998–2007	151	24.1	ns
2008 to present	133	25.8	
Conjugality			
Single	233	24.9	ns
Non-single	51	25.5	
History of drug abuse			
Yes	203	21.0	ns
No	81	26.6	
Ethnicity			
Non-white	41	26.8	ns
White	243	24.7	
Years of education <sup>a</sup>			
4–8	88	23.9	ns
9–13	168	26.2	
14–20	28	21.4	

<sup>a</sup> Used as continuous in the regression

For each variable, OR and their respective 95 % CI were calculated using the Wald test.

## Results

The racial/ethnic mix of the study group was 85.6 % white and 14.4 % non-white, 18 % reported having a stable partner, 18 % reported a history of drug abuse, and 29.2 % reported a history of sex work. The median age was 28 years old (range 15–58). Median year of education was 10 years (range 4–20) and 67.6 % lived in the metropolitan region and 32.4 % in the country. All of them have had sex with men. History of STD was positive in 32.4 %.

MtF HIV seroprevalence was 25 % at baseline (Table 1).<sup>1</sup> Seroprevalence was higher among those with older age, those who lived in the metropolitan area, those with a history of other STDs, and among those who reported sex work (Table 2). The year of diagnosis showed no significant relationship with the prevalence of HIV nor did the fact of being in a stable relationship, the history of drug abuse, the years of education, or race/ethnicity.

The odds of HIV infection in this group compared with the prevalence for the general Brazilian population given by the Ministry of Health Bulletin, that is 0.6 % (Ministério da Saúde, 2013) was 55.55 (95 % CI 38.39–80.39), and was statistically significant ( $p < .001$ ).

## Discussion

The transgender population was systematically omitted from all epidemiological bulletins from the Brazilian Ministry of Health. The official discourse is that the most vulnerable populations are men who have sex with men and female sex workers. The seroprevalence of each group is 10.5 and 4.9 %, respectively (Ministério da Saúde, 2013). This study, however, presents solid evidence that the population at highest risk in Brazil is transsexual women, especially those engaged in sex work. The fact that the prevalence did not change from 1998 until today and that it is also associated with metropolitan areas indicates the lack of effective policies aimed at reducing HIV-related risk for this population.

Social stigma and prejudice experienced due to belonging to one disadvantaged group produce cumulative stress responses that lead to adverse health outcomes in transgender populations (Bockting, Miner, Swinburne Romine, Hamilton, & Coleman, 2013; Haas et al., 2011; Meyer, 2003). As prejudice against gender nonconformity is a common phenomenon occurring across many contexts in Brazil (Costa, Peroni, Bandeira, &

Nardi, 2013), we suggest that the situation of chronic victimization that transgender communities are subject contributes to the reported higher seroprevalence. Other factors may be related to the infection such as social class background, personality and other psychological traits and accesses to health-care and specific prevention programs.

Studies with transgenders usually use convenience samples from metropolitan areas; therefore, they cannot be broadly generalized to the entire population (Bauer & Scheim, 2013). For this reason, it is difficult to accept the pooled Brazilian HIV prevalence of 31.1 % in the article by Baral et al. (2013). In Brazil, the transgender population is diverse, ranging from transsexuals that pursue SRS habiting large urban centers with access to health care, to *travestis* with several social and economic vulnerabilities (Kulick, 2009).

This study advances from the previous ones conducted in Brazil for being the first to use a population-based strategy. However, the population of transsexuals who seeks SRS is only a part of the spectrum of transgenders. Transgender from other social and cultural contexts certainly have nuances that are not encompassed in this research. Studies in other regions of the country, and which cover larger range of the transgender populations, should be conducted in order to provide a clearer picture of the HIV epidemic. In addition, in depth studies assessing not only risk, but also protective factors can addresses some constraints of this study.

In conclusion, we found that Brazilian MtF transsexuals, mainly those with a history of sex work, have a disproportionately high seroprevalence. Changes in the views of the vulnerable groups to HIV/AIDS in Brazil and efforts in the construction of strategies of prevention and in the guarantee of human rights are required.

## References

- Baral, S. D., Poteat, T., Strömdahl, S., Wirtz, A. L., Guadamuz, T. E., & Beyrer, C. (2013). Worldwide burden of HIV in transgender women: A systematic review and meta-analysis. *Lancet Infectious Diseases*, 13, 214–222.
- Bauer, G. R., & Scheim, A. I. (2013). Sampling bias in transgender studies. *Lancet Infectious Diseases*, 13, 832.
- Bockting, W. O., Miner, M. H., Swinburne Romine, R. E., Hamilton, A., & Coleman, E. (2013). Stigma, mental health, and resilience in an online sample of the US transgender population. *American Journal of Public Health*, 103, 943–951.
- Carballo-Diéguez, A., Balan, I., Dolezal, C., & Mello, M. B. (2012). Recalled sexual experiences in childhood with older partners: A study of Brazilian men who have sex with men and male-to-female transgender persons. *Archives of Sexual Behavior*, 41, 363–376.
- Costa, A. B., Peroni, R. O., Bandeira, D. R., & Nardi, H. C. (2013). Homophobia or sexism? A systematic review of prejudice against nonheterosexual orientation in Brazil. *International Journal of Psychology*, 48, 900–909.
- Grandi, J. L., Goihman, S., Ueda, M., & Rutherford, G. W. (2000). HIV infection, syphilis, and behavioral risks in Brazilian male sex workers. *AIDS and Behavior*, 4, 129–135.

<sup>1</sup> None of the 51 female-to-male (FtM) transsexuals that entered the program was diagnosed with HIV or other STDs.

- Haas, A. P., Eliason, M., Mays, V. M., Mathy, R. M., Cochran, S. D., D'Augelli, A. R., ... Clayton, P. J. (2011). Suicide and suicide risk in lesbian, gay, bisexual, and transgender populations: Review and recommendations. *Journal of Homosexuality*, 58, 10–51.
- Instituto Brasileiro de Geografia e Estatística. (2013). *Estimativas da população residente nos municípios brasileiros com data de referência em 1º de julho de 2013* [Estimates of population in municipalities with reference date on July 1, 2013]. Retrieved from <http://www.pnud.org.br/arquivos/ranking-idhm-2010-uf.pdf>
- Kulick, D. (2009). *Travesti: Sex, gender, and culture among Brazilian transgendered prostitutes*. Chicago: University of Chicago Press.
- Lobato, M. I., Koff, W. J., Schestatsky, S. S., Chaves, C. P. D. V., Petry, A., Crestana, T., ... Henriques, A. A. (2007). Clinical characteristics, psychiatric comorbidities and sociodemographic profile of transsexual patients from an outpatient clinic in Brazil. *International Journal of Transgenderism*, 10, 69–77.
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, 129, 674–697.
- Ministério da Saúde. (2013). *Boletim Epidemiológico Aids e DST* [Epidemiological Bulletin Aids and STDs]. Retrieved from [http://www.aids.gov.br/sites/default/files/anexos/publicacao/2012/52654/boletim\\_2012\\_final\\_1\\_pdf\\_21822.pdf](http://www.aids.gov.br/sites/default/files/anexos/publicacao/2012/52654/boletim_2012_final_1_pdf_21822.pdf)
- Programa das Nações Unidas para o Desenvolvimento. (2013). *Atlas do Desenvolvimento Humano no Brasil* [Atlas of Human Development in Brazil]. Brasília, Brazil: PNUD.
- Varella, D., Tuason, L., Proffitt, M. R., Escalera, N., Alquezar, A., & Bukowski, R. M. (1996). HIV infection among Brazilian transvestites in a prison population. *AIDS Patient Care and STDs*, 10, 299–302.